ATTACHMENT 4

SURFACE WATER QUALITY MONITORING PLAN

CYPRESS CREEK TOWN CENTER
SURFACE WATER QUALITY
MONITORING PLAN

Prepared for:

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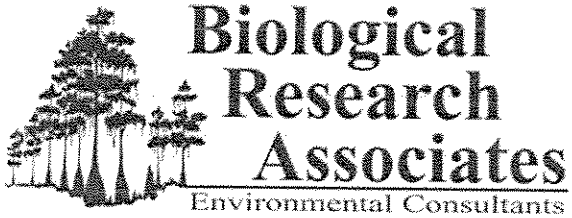

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1.0 INTRODUCTION

The Cypress Creek Town Center development is located in the southwest quadrant of the intersection of State Road 56 and Interstate 75 in Pasco County, Florida. The Development Order issued for Cypress Creek Town Center requires the development and implementation of a surface water quality monitoring plan. This plan will be implemented prior to site development to characterize baseline conditions and will continue through site buildout (scheduled as 2011 in the Development Order), and for five years thereafter. As development progresses, this plan may be modified to account for changes in site drainage resulting from the stormwater management system accompanying construction. The plan also provides for follow-up sampling in the event the regular sampling indicates conditions worthy of concern.

This plan does not address turbidity monitoring in surface waters adjacent to active earthmoving or construction areas. Such monitoring may be required to ensure compliance with water quality standards and is expected to follow a separate schedule as stipulated by applicable permits (e.g., NPDES Permit for Stormwater Discharge from Large and Small Construction Activities pursuant to Chapter 62-621.300(4) F.A.C) or by agency policies and/or personnel. Similarly, it does not address monitoring of other potential contaminants directly associated with construction equipment and practices since those are also regulated under NPDES construction permits and addressed through best management practices and continuous site reviews by construction oversight personnel. This monitoring program targets broad-scale, continuous and/or long-term changes in water quality that might result from development, and the likelihood that this program would detect transient, short-term events caused by specific construction activities or events is very small.

The approved Pasco County Development Order for this project includes a number of special considerations expected to augment typical surface water quality protection. These are clearly identified in the Condition 5.c.(8)(a). Principal among the water quality protection considerations is the use of stormwater treatment ponds that will treat 50 percent more volume than standard stormwater ponds. As a result of this additional treatment volume, the stormwater ponds are expected to discharge only rarely under average rainfall conditions, and to discharge only for short periods of time, thus minimizing the potential for any water quality effects on the receiving waters.

2.0 SURFACE WATER SAMPLING LOCATIONS

The primary surface water feature associated with the site is Cypress Creek, which borders the development parcel along its southern edge. Sampling locations were chosen along this waterway to characterize water in Cypress Creek as it flows southeasterly along the property before passing under Interstate 75. Three stations on Cypress Creek will be monitored (see Figure 1):

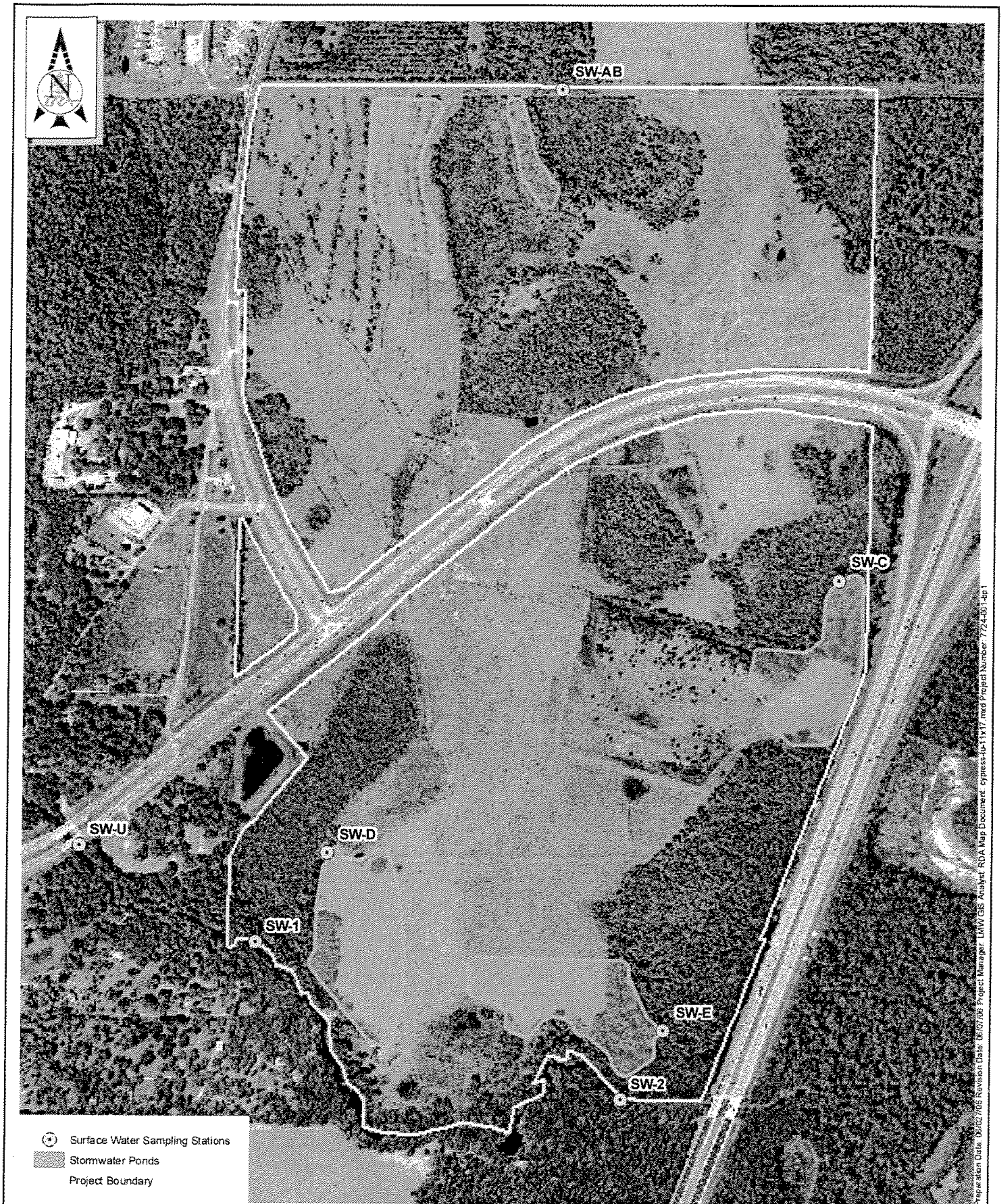
- SW-U – Cypress Creek at SR 54 (28.18556 N, -82.40083 W). This location is well upstream of the development site and will be used to characterize water quality in the stream prior to any potential effects from the site. There is a USGS stream gauge at this location and water quality samples are periodically collected from that station, with the data published at http://nwis.waterdata.usgs.gov/fl/nwis/qwdata?search_site_no=02303420. Samples will be collected on the downstream side of the SR 54 bridge so that any effects of the bridge on water quality are included as part of the "background" conditions of this upstream reference station.

- SW-1 – Cypress Creek at the southwest corner of the site, generally upstream of all development activities (28.18519 N, -82.39841 W). Sampling will be conducted near the unusually-shaped cypress tree shown in Figure 2A, which was selected as a field marker of the sampling point.

- SW-2 – Cypress Creek near the southeast corner, downstream of all development activities (28.18258 N, -82.39112 W). Sampling will be conducted near a cypress tree with a very broad buttress as shown in Figure 2B, which was selected as a field marker of the sampling point.

Four stormwater ponds (A, C, D and E) will be constructed to treat runoff from the developed area. At the north end of the parcel, just east of Pond A are two wetlands with an intervening area of higher ground. This higher area (referred to as "B" during stormwater plan development) is to be scraped down to provide supplemental storage and treatment of water leaving Pond A, before it exits the northern edge of the development site. After the ponds are constructed, monitoring will be conducted just below the discharge structures of Ponds C, D and E (Stations SW-C, SW-D and SW-E), and just below the ultimate discharge structure from the wetland treatment area receiving water from Pond A (Station SW-AB). See Figure 1 for locations of these four outfall monitoring stations. Sampling from these discharge points will only be conducted when discharge is present.

As site development proceeds, one or more stations may be relocated to better characterize surface water associated with the site. Such changes will be noted in monitoring reports, as applicable.



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Cypress Creek Town Center
Surface Water Sampling Stations
Pasco County, FL

Biological Research Associates

Figure 2A. Cypress tree located on bank of Cypress Creek at approximately 28.18519 N, -82.39841 W – used as field marker for Station SW-1.

Figure 2B. Cypress tree located on bank of Cypress Creek at approximately 28.18258 N, -82.39112 W – used as field marker for Station SW-2.

3.0 SAMPLING SCHEDULE

The "regular" monitoring under this plan can generally be divided into three time periods (a) Baseline Monitoring (prior to any construction activities) began in early 2007 and will continue until site development begins (as determined by the developer) (b) Construction Monitoring (during all site development activities) will immediately follow the Baseline Monitoring as construction begins and will continue through the construction period, and (c) Post-Construction Monitoring will begin after construction activities are completed (as determined by the developer) and continue for five years thereafter.

Through each of these time periods, monitoring will be conducted at SW-U, SW-1, and SW-2. After the stormwater ponds are completed, monitoring will also include sample collection at SW-AB, SW-C, SW-D and SW-E. Monitoring events will be conducted three times during the wet season (July-September) and two times during the dry season (January-May). Sample collection during the wet and dry season will be triggered by rainfall according to the following:

- During the Baseline Monitoring period, sampling will be conducted following one-day rainfall events of approximately one-half inch or more at the project site (based upon on-site rain gauge data, as well as regional rainfall gauging stations and/or Doppler radar estimates available via the Internet).

- During the Construction Monitoring period prior to completion of the stormwater system outfalls, sampling will be conducted following one-day rainfall events of approximately one-half inch or more at the project site (based upon on-site rain gauge data, as well as regional rainfall gauging stations and/or Doppler radar estimates available via the Internet).

- During the Construction Monitoring period after completion of the stormwater system outfalls, sampling will be conducted following rainfall events of sufficient magnitude to cause discharge from one or more of the stormwater treatment system outfalls on the site. In the event the ponds do not discharge during a given wet season or dry season monitoring period, sampling will be conducted at all three stations on Cypress Creek one time during that period following a one-day rainfall event of approximately one-half inch or more at the project site (based upon on-site rain gauge data, as well as regional rainfall gauging stations and/or Doppler radar estimates available via the Internet).

- During the Post-Construction Monitoring period, sampling will be conducted following rainfall events of sufficient magnitude to cause discharge from one or more of the stormwater treatment system outfalls on the site. In the event the ponds do not discharge during a given wet season or dry season monitoring period, sampling will be conducted at all three stations on Cypress Creek one time during that period following a one-day rainfall event of approximately one-half inch or more at the project site (based upon on-site rain gauge data, as well as regional rainfall gauging stations and/or Doppler radar estimates available via the Internet).

For each monitoring event, every effort will be made to conduct sampling within 24-hours of the triggering rainfall event. If sampling cannot occur within 48-hours of the rainfall event, sampling will be postponed until the next rainfall event. Following completion of the stormwater treatment system, sampling will not be conducted if discharge is not present through at least one of the outfalls. To the extent possible, based upon the timing of rainfall, all regular monitoring events will be conducted at least two weeks apart.

4.0 PARAMETERS

The following parameters will be measured in the field at each active station:

temperature	conductivity	turbidity
pH	dissolved oxygen	

A single grab sample (comprised of several sub-sample vessels) will be collected from each active station. Samples will be preserved in the field and transported to the laboratory for analysis of the following constituents:

oil and grease	fecal coliform bacteria
total hardness	total suspended solids
ortho-phosphate	total phosphorus
nitrate+nitrite nitrogen	ammonia nitrogen
total Kjeldahl nitrogen	biochemical oxygen demand

arsenic	chromium VI	cadmium
copper	lead	zinc

chlorinated hydrocarbon pesticides (EPA Method 608)
chlorinated phenoxy acid herbicides (EPA Method 615)
organophosphate compounds, including Atrazine and Diazinon (EPA Method 8141A)
naphthalene and benzene – (EPA Method 8260)
polycyclic aromatic hydrocarbons – (EPA Method 8270sim)

This list of parameters will be monitored through the Baseline and Construction Monitoring periods, as well as at least one year of Post-Construction Monitoring. If, during the first full year of Post-Construction monitoring, one or more of the groups of organic compounds in the last set of parameters above is not detected above the levels observed during the Baseline Monitoring or applicable state water quality standards (whichever is lower), monitoring for those compounds will be reduced to once per year (during wet season sampling to target higher flows from the site). Such changes will be noted in water quality monitoring reports, as applicable.

5.0 FOLLOW-UP SAMPLING

Field and laboratory results will be evaluated as soon after each event as they are available. If results suggest a water quality concern that could be associated with the Cypress Creek Town Center development, follow-up sampling will be utilized to better characterize the condition. After the Baseline Monitoring period, if a regular monitoring event yields results that exceed levels observed in existing historical data [e.g., USGS data from its Station 02303420 on Cypress Creek, or Environmental Protection Commission of Hillsborough County (EPCHC) Station 120 on Cypress Creek], during Baseline Monitoring, or Class III water quality standards, a follow-up sampling event will be performed. The follow-up event will focus on the location where the initial concern was suggested, and on the parameters related to the observed concern. While follow-up sampling will not necessarily be performed in response to *de minimus* water quality changes, decisions to conduct follow-up sampling will be made conservatively to ensure that sampling identifies potential water quality problems as early as possible.

Follow-up sampling will be performed within one week of receipt of results showing the observed conditions of concern. This may mean that follow-up events are not directly linked to triggering rainfall events in the manner used during regular monitoring, and may not be conducted at times when discharge is present from all (or any) of the stormwater ponds. Follow-up sampling will be performed at the point(s) where the conditions of concern are observed. If at least one of the "on-site" stations on Cypress Creek (SW-1 and/or SW-2) showed a potential problem, all three Cypress Creek stations will be included in the follow-up sampling. The table below lists the parameters to be included in follow-up sampling, based on the observed water quality concern.

Elevated Level Observed for:	Follow-up Sampling Will Include:
Conductivity	All field parameters
Turbidity	All field parameters
pH	All field parameters
Dissolved Oxygen [<5.0 mg/L (*see below)]	All field parameters
Fecal coliform bacteria (*see below)	Fecal coliform bacteria, all field parameters
Oil and grease	Oil and grease, all field parameters
Total suspended solids	Total suspended solids, turbidity, all field parameters
Ortho or total phosphorus	All nitrogen and phosphorus species listed above, all field parameters
Any nitrogen species	All nitrogen and phosphorus species listed above, all field parameters
Biochemical oxygen demand	Biochemical oxygen demand and dissolved oxygen, all field parameters
Any heavy metal	All heavy metals listed above, total hardness, all field parameters
Any chlorinated hydrocarbon pesticide	All compounds in EPA Method 608, all field parameters
Any chlorinated phenoxy acid herbicide	All compounds in EPA Method 615, all field parameters
Any organophosphate compound	All compounds in EPA Method 8141A, all field parameters
Naphthalene or benzene	Naphthalene or benzene, all field parameters
Any polycyclic aromatic hydrocarbon	All compounds in EPA Method 8270sim, all field parameters

*--Follow-up sampling will generally not be performed in association with exceedences of Class III water quality standards for dissolved oxygen (DO) or fecal coliform sampling, since Cypress Creek is known to have episodes of depressed DO levels and elevated fecal coliform levels, and since the approved development activities cannot reasonably be expected to negatively affect these parameters. However, if measured DO levels are lower, or fecal coliform counts are higher, in the discharge from a pond than in synoptic data from the Cypress Creek stations, follow-up sampling will be implemented for those samples to evaluate whether the pond may be negatively influencing these parameters in Cypress Creek.

Follow-up sampling will not be conducted when the conditions of concern are only observed in samples from Cypress Creek and the levels of concern are the same (or worse) at the reference station (SW-U) as at Stations SW-1 and/or SW-2.

If follow-up sampling continues to show the same general conditions of concern, additional follow-up sampling will be performed in the same manner until the cause of the problem is identified and corrected or other mitigative steps are taken by the developer/site manager. Conversely, if follow-up sampling indicates no further indication of the potential pollution concern, no additional follow-up sampling will be conducted and the regular sampling schedule will be resumed.

If follow-up sampling is to be implemented, Pasco County will be notified in writing (and/or by electronic mail) within 48 hours of determination of the need for the sampling, and a courtesy copy of the notice will be provided to the Florida Department of Environmental Protection (FDEP) and Tampa Bay Water (TBW) (Note: TBW will only be notified if the parameter of concern is associated with potential human health issues). Such notices will include the reason follow-up sampling is being implemented, along with a schedule for the follow-up sampling effort.

6.0 QUALITY ASSURANCE

All field measurements and sample collection will be performed in accordance with FDEP Standard Operating Procedures as prescribed by Chapter 62-160, F.A.C. All laboratory analyses will be conducted by a state-certified laboratory with National Environmental Laboratories Accreditation Conference (NELAC) approval. Analyses will be conducted to conform to FDEP's Minimum Detection Limit (MDL) and Practical Quantitation Limit (PQL) targets (see link to current list at http://www.dep.state.fl.us/labs/library/index.htm).

7.0 REPORTING

Following the last wet season event each calendar year, and upon receipt of laboratory analysis results, a report will be prepared presenting the results of that year's monitoring. Annual reports will be submitted to Pasco County, and copied to FDEP, TBW, and EPCHC. Each annual report will include:

- A brief summary of the sampling methodology
- Meteorological conditions during the 48 hours preceding each sampling event
- Daily rainfall records for that year from a gauge in the general area (e.g., on-site rain gauge, local National Weather Service stations), or Doppler radar rainfall estimates
- Monitoring dates on which discharge was and was not present at each monitored outfall
- Description/discussion of anomalous field conditions, if encountered
- Photographs generally depicting sampling location conditions, if pertinent
- All field measurements and laboratory results
- Comparison of measured values with applicable state water quality standards
- Comparison of current values with those measured during prior monitoring (particularly baseline monitoring)

- Comparison with data reported by the USGS from its monitoring station 02303420 at SR54 (availability of data may lag the results generated by this monitoring program)
- Comparison with data reported by EPCHC from its Station 120 on Cypress Creek at County Road 581, and from any other station(s) established by EPCHC on Cypress Creek upstream of Station 120 (availability of data may lag the results generated by this monitoring program)
- Discussion of water quality conditions relative to the Cypress Creek Town Center development, where pertinent.
- Recommendations for any amendments or revisions to the monitoring plan, based upon results obtained or changes in site conditions.

If follow-up sampling is conducted, a separate report will be prepared addressing the regular sampling results leading to the follow-up sampling, the results of the follow-up sampling, and any mitigative steps proposed or undertaken by the developer/site manager. These reports will be submitted to Pasco County, with courtesy copies to FDEP, the Southwest Florida Water Management District (SWFWMD), and TBW (Note: TBW will only be notified if the parameter of concern is associated with human health concerns[1]). Such reports will be submitted within one week of the completion of all required analyses.

Results of any follow-up sampling efforts will also be included in the annual report for the current year, along with a brief discussion of steps taken to mitigate any adverse water quality issue that may have arisen in association with the Cypress Creek Town Center site (see below).

8.0 MEASURES TO PROTECT WATER QUALITY

If the regular monitoring and/or follow-up sampling results indicate that one or more of the stormwater outfalls is a likely source of a potential water quality concern, the developer/site manager will be advised immediately by the water quality monitoring contractor to take steps to remediate the conditions, including implementation or augmentation of additional stormwater best management practices and/or other feasible enhancements to the stormwater treatment system.

Within 30 days of notification by the water quality monitoring contractor of an apparent water quality problem, the developer/site manager will submit to Pasco County a plan outlining specific steps to be taken to ameliorate the situation. Courtesy copies of this plan will be provided to FDEP, SWFWMD and TBW (Note: TBW will only be notified if the parameter of concern is associated with potential human health issues).

Following implementation of any mitigative measures, a report will be submitted to Pasco County documenting the actions taken and the observed results. Courtesy copies of this report will be provided to FDEP, SWFWMD, and TBW (Note: TBW will only be notified if the parameter of concern is associated with potential human health issues).

[1] This generally includes the organic constituents and the heavy metals, when they are reported above the Maximum Contaminant Limit (MCL) as set forth in the US EPA Drinking Water Standards.